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MAY 14 2014

K133912

510(K) SUMMARY

Summary of Safety and Effectiveness Information
Supporting a Substantially Equivalent Determination

Submitted by: ORIGIO a/s
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Date Submitted: May 12, 2014

Device Identification

Trade name:
ORIGIO® Sequential Fert™
ORIGIO® Sequential Fert™ with phenol red
ORIGIO® Sequential Cleav™
ORIGIO® Sequential Cleav™ with phenol red

Common name:
ORIGIO® Sequential Fert™
ORIGIO® Sequential Cleav™

Classification name: Reproductive media and supplements (21 CFR 884.6180, Product Code MQL)

Predicate devices:

Cook Medical: Cook IVF Fertilization Medium and Cook IVF Cleavage Medium (K002385).

Description

ORIGIO® Sequential Fert™ is intended for *in vitro* fertilization of human oocytes.

Two versions of ORIGIO® Sequential Fert™ are available:

- Catalogue no. 8301: ORIGIO® Sequential Fert™
- Catalogue no. 8302: ORIGIO® Sequential Fert™ with phenol red

ORIGIO® Sequential Cleav™ is intended for in vitro culture of human embryos until the 2-8 cell stage. The medium can also be used for transfer.

Two versions of ORIGIO® Sequential Cleav™ are available:

- Catalogue no. 8303: ORIGIO® Sequential Cleav™
- Catalogue no. 8304: ORIGIO® Sequential Cleav™ with phenol red

Both ORIGIO® Sequential Fert™ and ORIGIO® Sequential Cleav™ are aseptically filtered, non viscous solutions, light pink or colorless solutions, which are ready to use by professionals within assisted reproduction.

ORIGIO® Sequential Fert™ and ORIGIO® Sequential Cleav™ are contained in 10 mL or 60 mL transparent polyethylene terephthalate glycol (PETG) bottles with high density polyethylene (HDPE) closures, available in card board boxes of 1 x 10 mL and 1 x 60 mL bottles. The bottles and boxes are individually labeled. The boxes also contain instruction for use provided as package insert.

Indication for use
ORIGIO® Sequential Fert™ is for the fertilization of oocytes in vitro.

ORIGIO® Sequential Cleav™ is for the culture of embryos until the 2-8 cell stage.
ORIGIO® Sequential Cleav™ can also be used for embryo transfer at day 2 or 3.

Technological characteristics
The design of ORIGIO® Sequential Fert™ and ORIGIO® Sequential Cleav™ as well as the predicates listed in this submission is based on each medium containing the appropriate nutrients for the embryo development stage it is intended for. Table 1 compares the technological characteristics of ORIGIO® Sequential Fert™ and ORIGIO® Sequential Cleav™ to the predicates Cook IVF Fertilization Medium and Cook IVF Cleavage Medium. Both similarities and differences are illustrated.

ORIGIO® Sequential Fert™ is for the fertilization of oocytes in vitro. Cook IVF Fertilization Medium is intended for use during in vitro fertilization procedures for insemination and incubation of oocytes. The in vitro fertilization procedure includes insemination and incubation of the oocytes. Thus, the indication for use for ORIGIO® Sequential Fert™ is considered comparable to the predicate and the differences are not considered to represent a new intended use nor do they pose any safety or effectiveness issues.
ORIGIO® Sequential Cleav™ is for culture and transfer of embryos as the predicate Cook IVF Cleavage Medium. Thus, the intended use of ORIGIO® Sequential Cleav™ is considered identical to the predicate.

Table 1. Comparison of ORIGIO® Sequential Fert™ and ORIGIO® Sequential Fert™ with the predicates.

Product	ORIGIO® Sequential Fert™	Cook IVF Fertilization Medium	ORIGIO® Sequential Cleav™	Cook IVF Cleavage Medium
Indication for use	ORIGIO® Sequential Fert™ is for the fertilization of oocytes in vitro.	Cook IVF Fertilization Medium is intended for use during in vitro fertilization procedures for insemination and incubation of oocytes.	ORIGIO® Sequential Cleav™ is for the culture of embryos until the 2-8 cell stage. ORIGIO® Sequential Cleav™ can also be used for embryo transfer at day 2 or 3.	Cook IVF Cleavage Medium is intended for use during in vitro fertilization procedures for culture and transfer of embryos.
Product specification				

Product	ORIGIO® Sequential Fert™	Cook IVF Fertilization Medium	ORIGIO® Sequential Cleav™	Cook IVF Cleavage Medium
pH	7.3-7.5	7.5-7.8 (in air) 7.3-7.5 (in 6% CO_2)	7.2-7.4	7.5-7.8 (in air) 7.3-7.5 (in 6% CO_2)
Osmolality (mOsm/kg)	277-293	285-295	272-288	285-295
Endotoxin (EU/mL)	<0.15	<0.4	<0.15	<0.4
Aseptically filtered	X	X	X	X
1-cell MEA	≥80%	≥80%	≥80%	≥80%
Formulation				
Physiological salts	Sodium chloride Potassium chloride Sodium dihydrogen phosphate Magnesium sulphate Calcium chloride	X	Sodium chloride Potassium chloride Sodium dihydrogen phosphate Magnesium sulphate	X
Protein source				
HSA Protein Supplementation	5 mg/mL	X	5 mg/mL	X
Drugs				
Gentamicin sulphate	0.01 mg/mL	X	0.01 mg/mL	X
Vitamins				
Calcium pantothenate	X		X	
Folic acid	X		X	
Amino acids				
Non essential amino acids	X	X	X	X
Essential amino acids			X	
Energy substrates				
D-(+)-Glucose	X	X	X	
Calcium lactate	X	X	X	X
Sodium pyruvate	X	X	X	X
Buffering system				
Sodium bicarbonate	X	X	X	X
Other				
Tri sodium citrate dihydrate	X		X	
Sodium hyaluronate			X	

The technological characteristics of ORIGIO® Sequential Fert™ and ORIGIO® Sequential Cleav™ are comparable to those of the predicate device. The main differences are:

- Vitamins: ORIGIO® Sequential Fert™ and ORIGIO® Sequential Cleav™ contain the vitamins folic acid and calcium pantothenate in similar concentration ranges as added in other cleared ART media e.g. EmbryoAssist™ (K080473) and EmbryoGen® (K120136),

which both have fertilization of oocytes, culture of embryos until the 2-8 cell stage and embryo transfer as the indication for use. Thus, folic acid and calcium pantothenate have a history of use in other ART media and do not represent a new technology.

- Essential amino acids: ORIGIO® Sequential Cleav™ contains both essential and non essential amino acids, whereas the predicate for this product, Cook IVF Cleavage Medium, only contains non essential amino acids. Essential amino acids are well known components of cleared ART media with indication for use for fertilization, culture of embryos until the 2-8 cell stage and embryo transfer e.g. ISM1™ (K030490) and SAGE 1-Step™ (K133707) and thus, do not represent a new technology.
- Glucose: ORIGIO® Sequential Fert™ contains glucose which is also present in the predicate Cook IVF Fertilization Medium. ORIGIO® Sequential Cleav™ contains a low level of glucose which is not present in the predicate but is found in a comparable concentration in other cleared ART media with the same indication for use, culture of embryos until the 2-8 cell stage and embryo transfer, e.g. EmbryoAssist™ (K080473). Thus, the addition of glucose has a history of use in cleavage stage culture media and does not represent a new technology.
- Citrate: ORIGIO® Sequential Fert™ and ORIGIO® Sequential Cleav™ contain citrate which is a well known component in ART media and has a history of use in media intended for fertilization, culture of embryos until the 2-8 cell stage and embryo transfer e.g. Universal IVF Medium (K991279) and EmbryoAssist™ (K080473). Thus, the addition of citrate does not represent a new technology.
- Sodium hyaluronate: ORIGIO® Sequential Cleav™ contains hyaluronate in a concentration range similar to that added in other cleared ART media products e.g. SAGE 1-Step™ (K133707) which is indicated for use at the same developmental stage and for embryo transfer. Thus, the addition of sodium hyaluronate does not represent a new technology.

The differences in composition do not impact the substantial equivalence and do not raise any new types of safety or effectiveness concern.

Performance data
The product specifications for ORIGIO® Sequential Fert™ and ORIGIO® Sequential Cleav™ and the predicates are similar regarding sterility, pH, and Mouse Embryo Assay (MEA) test. The endotoxin level for ORIGIO® Sequential Fert™ and ORIGIO® Sequential Cleav™ is lower (<0.15 EU/mL) than for the predicates (<0.4 EU/mL) and thus do not raise any safety concerns.

Regarding the osmolality, the specification limit is a bit wider for ORIGIO® Sequential Fert™ and ORIGIO® Sequential Cleav™ (277-293 and 272-288 mOsm/kg, respectively) than for the predicates (285-295 mOsm/kg). However, the specification for ORIGIO® Sequential Fert™ is identical to the osmolality specification for Universal IVF Medium (K991279) which is also intended for fertilization of oocytes, whereas the specification for ORIGIO® Sequential Cleav™ is the same as the one for EmbryoAssist™ (K080473) with the indication for use for culture of embryos until the 2-8 cell stage. Thus, the osmolality specifications for ORIGIO® Sequential Fert™ and ORIGIO® Sequential Cleav™ do not raise any safety concerns.

The shelf life of ORIGIO® Sequential Fert™ and ORIGIO® Sequential Cleav™ has been validated in stability studies to 36 weeks. The parameters which have been tested in the stability studies through shelf life includes pH, osmolality, endotoxin, HSA concentration, MEA, and sterility.

In general, ORIGIO® Sequential Fert™ and ORIGIO® Sequential Cleav™ are subject to the same control methods and, to a significant degree, contain the same components as the predicate devices. ORIGIO® Sequential Fert™ and ORIGIO® Sequential Cleav™ have similar handling procedures and storage conditions. Therefore, ORIGIO® Sequential Fert™ and ORIGIO®

Sequential Cleav™ are considered substantially equivalent to the predicate devices Cook IVF Fertilization Medium and Cook IVF Cleavage Medium (K002385).

Biocompatibility

ORIGIO® Sequential Fert™ will not come in contact with the body during use and therefore does not require biocompatibility testing to support its intended use.
ORIGIO® Sequential Cleav™ may be used for transferring embryos to the patient's uterus following culture. Biocompatibility testing per ISO 10993-1:2009 for a device with short duration contact with mucosal tissues (i.e., cytotoxicity, sensitization, and irritation) was conducted and showed device materials to be biocompatible, supporting safety for use in embryo transfer procedures.

Conclusion

The conclusion from the performance and safety data, intended use comparison, product formulation comparison and test specification comparison, demonstrates that ORIGIO® Sequential Fert™ (with and without phenol red) and ORIGIO® Sequential Cleav™ (with and without phenol red) are suitable for their intended use, and meet the criteria in the comparison to the predicate devices (Cook IVF Fertilization Medium and Cook IVF Cleavage Medium, K002385) in which substantial equivalence has been demonstrated.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
10903 New Hampshire Avenue
Document Control Center – WO66-G609
Silver Spring, MD 20993-0002

May 14, 2014

ORIGIO a/s
Tove Kjaer
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Knardrupvej2
Måløv 2760
Denmark

Re: K133912
Trade/Device Name: ORIGIO® Sequential Fert™
ORIGIO® Sequential Fert™ with phenol red
ORIGIO® Sequential Cleav™
ORIGIO® Sequential Cleav™ with phenol red
Regulation Number: 21 CFR§ 884.6180
Regulation Name: Reproductive media and supplements
Regulatory Class: II
Product Code: MQL
Dated: April 8, 2014
Received: April 11, 2014

Dear Tove Kjaer,

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration. Please note: CDRH does not evaluate information related to contract liability warranties. We remind you, however, that device labeling must be truthful and not misleading.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the Federal Register.

Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies.
You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Part 801); medical device reporting (reporting of medical device-related adverse events) (21 CFR 803); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820); and if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

If you desire specific advice for your device on our labeling regulation (21 CFR Part 801), please go to http://www.fda.gov/AboutFDA/CentersOffices/CDRH/CDRHOffices/ucm115809.htm for the Center for Devices and Radiological Health's (CDRH's) Office of Compliance. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21CFR Part 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to http://www.fda.gov/MedicalDevices/Safety/ReportaProblem/default.htm for the CDRH's Office of Surveillance and Biometrics/Division of Postmarket Surveillance.

You may obtain other general information on your responsibilities under the Act from the Division of Small Manufacturers, International and Consumer Assistance at its toll-free number (800) 638-2041 or (301) 796-7100 or at its Internet address http://www.fda.gov/MedicalDevices/ResourcesforYou/Industry/default.htm.

Sincerely yours,

Benjamin R. Fisher -S

Benjamin R. Fisher, Ph.D.
Director
Division of Reproductive, Gastro-Renal,
and Urological Devices
Office of Device Evaluation
Center for Devices and Radiological Health

Enclosure

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Food and Drug Administration

Indications for Use

Form Approved: OMB No. 0910-0120
Expiration Date: December 31, 2013
See PRA Statement on last page.

510(k) Number *(if known)*
K133912

Device Name
ORIGIO® Sequential Fert™ and ORIGIO® Sequential Fert™ with phenol red

Indications for Use *(Describe)*
ORIGIO® Sequential Fert™ is for the fertilization of oocytes in vitro.

Type of Use *(Select one or both, as applicable)*

☒ Prescription Use (Part 21 CFR 801 Subpart D) ☐ Over-The-Counter Use (21 CFR 801 Subpart C)

PLEASE DO NOT WRITE BELOW THIS LINE – CONTINUE ON A SEPARATE PAGE IF NEEDED.

FOR FDA USE ONLY

Concurrence of Center for Devices and Radiological Health (CDRH) *(Signature)*

Benjamin R. Fisher -S
2014.05.14 15:08:34 -04'00'

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DEPARTMENT OF HEALTH AND HUMAN SERVICES
Food and Drug Administration

Indications for Use

Form Approved: OMB No. 0910-0120
Expiration Date: December 31, 2013
See PRA Statement on last page.

510(k) Number *(if known)*
K133912

Device Name
ORIGIO® Sequential Cleav™ and ORIGIO® Sequential Cleav™ with phenol red

Indications for Use *(Describe)*
ORIGIO® Sequential Cleav™ is for the culture of embryos until the 2-8 cell stage.
ORIGIO® Sequential Cleav™ can also be used for embryo transfer at day 2 or 3.

Type of Use *(Select one or both, as applicable)*
☒ Prescription Use (Part 21 CFR 801 Subpart D) ☐ Over-The-Counter Use (21 CFR 801 Subpart C)

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